April 12, 1932. J. C. BOHMKER 1,853,500

BROODER

Filed Feb. 11, 1928

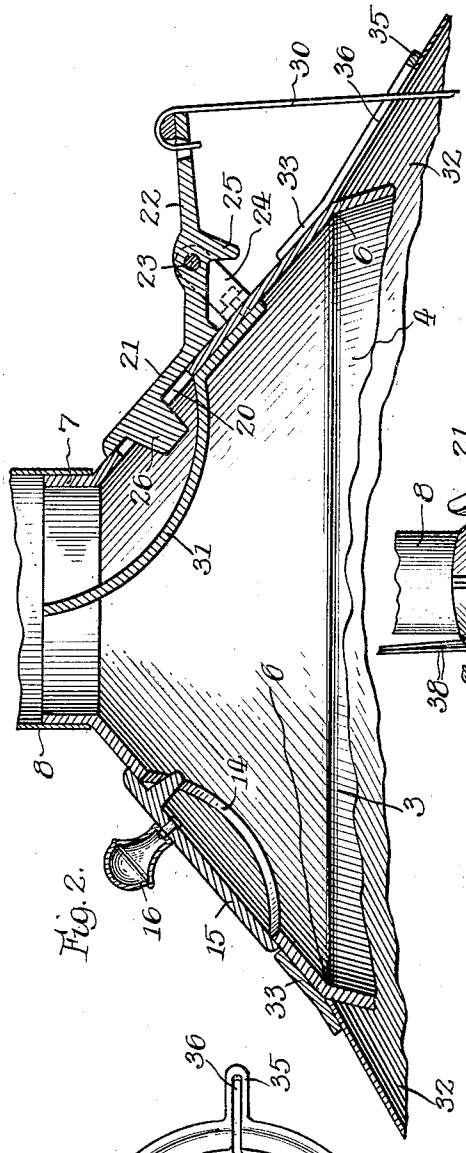

Fig. 2.

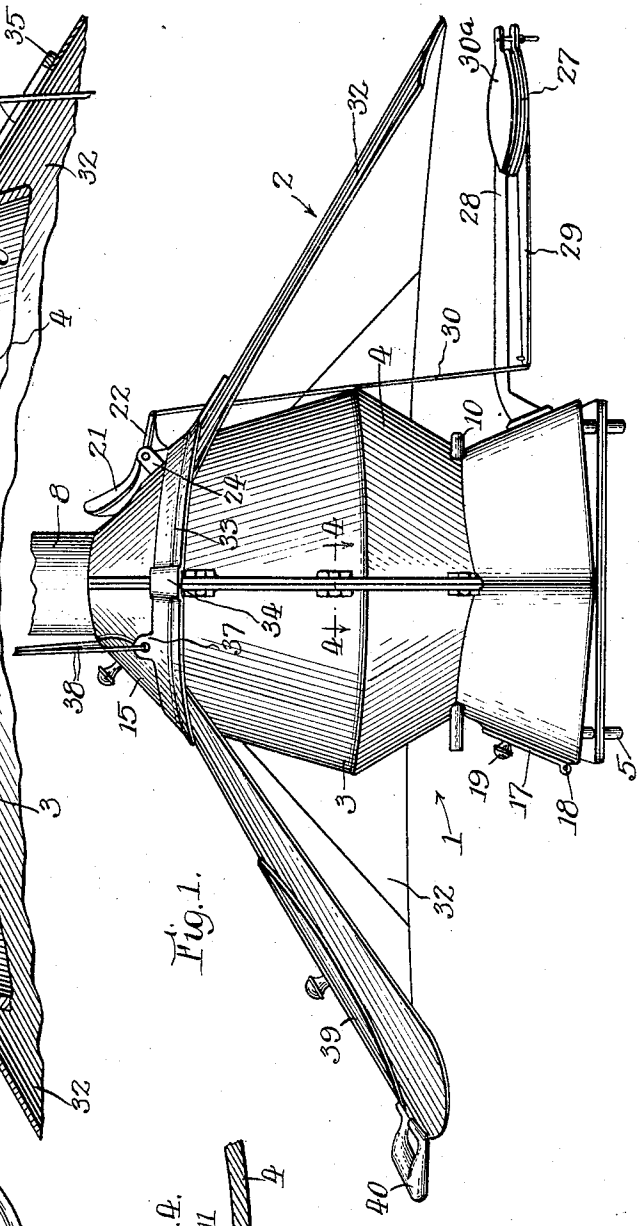

Fig. 1.

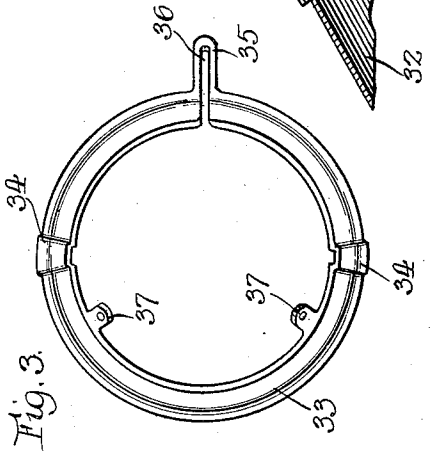

Fig. 3.

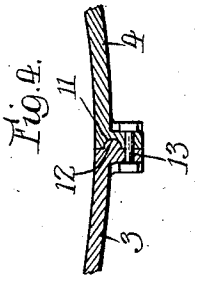

Fig. 4.

Inventor:
John C. Bohmker,
By Lindell, Parker & Carlson,
Attys.

Patented Apr. 12, 1932 1,853,500

UNITED STATES PATENT OFFICE

JOHN C. BOHMKER, OF BRADLEY, ILLINOIS, ASSIGNOR TO SEARS, ROEBUCK AND CO., OF CHICAGO, ILLINOIS, A CORPORATION OF NEW YORK

BROODER

Application filed February 11, 1928. Serial No. 253,565.

The invention relates generally to poultry raising equipment and more particularly to certain improvements in brooders for raising incubator hatched chicks.

It is an object of the invention to provide a new and improved brooder of this character which is capable of most efficiently utilizing the heat of the stove incorporated therein and which may be very easily operated.

Another object of the invention is to provide a brooder embodying a stove which has large heat and fuel capacity, and which may be simply and economically constructed.

A further object is to provide a brooder embodying a novel and improved manner of supporting the overhanging canopy, which permits the canopy to be easily removed to an out of the way position during the operations of attending the stove.

Other objects and advantages will become apparent in the following description and from the accompanying drawings, in which:

Figure 1 is an elevational view of a preferred form of the invention, with a section of the canopy removed to permit a view of the heater.

Fig. 2 is an enlarged fragmentary vertical section of the upper portion of the brooder.

Fig. 3 is a plan view of the canopy supporting collar.

Fig. 4 is a fragmentary section taken on the line 4—4 of Fig. 1.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

For descriptive purposes, the brooder may be divided into two parts, namely the heating unit or stove 1 and the outwardly spreading shelter or canopy 2 supported therefrom. In the present embodiment the stove comprises a construction which is simple and economical to manufacture, which may be assembled with maximum facility and speed, which has a large heat and fuel capacity and which is adapted to radiate a large amount of heat in the desired direction.

Preferably the stove is of the fuel-coal burning type and, as may be seen in the drawings, comprises right and left vertical sections or shells 3 and 4 joined together to provide an upright substantially cylindrical stove. As may be seen in the drawings the stove sections are formed so that when joined the stove has a lower base portion provided with legs 5 for supporting the stove, and an inwardly tapering substantially conical upper portion which constitutes the top of the stove, and provides an annular shoulder 6 about the circumference of the stove near the top thereof. With reference to Fig. 2 it will be seen that the inwardly sloping top portion terminates in an axially extending flange 7 which is spaced a sufficient distance from the center to provide an outlet opening positioned centrally of the top of the stove. The flange 7 permits a stove pipe 8 of the usual type to be secured thereon for conveying away the gases created by the combustion of fuel in the stove.

As shown in Fig. 1 the surface of the stove flares gradually outwardly and downwardly from the top portion, and flares more sharply outwardly and upwardly from the base portion to join in a plane located a relatively short distance above the base. In this manner the effective fuel capacity of the stove is increased by sharply enlarging the diameter of the stove immediately above the position of the grates, indicated at 10. Moreover, it will be seen that the lower portion of the walls of the combustion chamber is at such an angle to the vertical that radiant heat

therefrom is directed toward the area to be occupied by the chicks, thus increasing the effective heat produced by the stove.

Means is provided for securely attaching each section of the stove together to form the completed unit, which means in this instance comprises rabbeted grooves 11 formed in the flanged side edges of one section, which grooves are adapted to be engaged by appropriately formed ribs 12 provided upon the correspondingly flanged side edges of the complementary section. Means, such as the bolts 13 extending through the respective flanges on each section, are employed to secure the sections together in such manner that the sections may be rapidly and easily taken apart for repair or replacement of either section. In joining the two sections together it has been found desirable to coat the abutting surfaces of the flanges with a suitable fire clay or cement which effectively seals the union between the two sections.

This construction provides a stove which may be easily formed by casting, and in which the various essential openings into the interior of the stove may be provided. These openings in the present embodiment comprise a fuel opening 14 in the top portion of one section (in this instance the left hand section in the drawings) which opening is adapted to be closed by a suitable separately formed door 15 provided with a handle 16.

In the base of the same section, an opening is provided to permit access into the interior of the base for removing ashes therefrom, which is preferably closed by a door 17 pivoted as at 18 to the base portion of the stove and operable by means of the handle 19 secured thereto. In the top portion of the opposite or right hand portion a damper opening 20 is provided and arranged to be closed by means of a damper door 21.

The damper door, in this instance, is arranged to close the opening tightly, and is provided with an operating tail piece 22 integral with and extending at an angle therefrom. The door is mounted for pivotal adjustment relative to the damper opening by means of a pivot 23 extending through a transverse bore in the tail piece and mounted in a pair of outstanding brackets 24 rigid with the stove. For convenience in adjusting the damper door a stop finger 25 is provided upon the tail piece to limit the outward movement of the door, and a counterbalancing weight 26 is formed integral with the door to insure that the door will tend to return to closed position.

If desired, the damper on the stove may be automatically adjusted by thermostatic means, which, as shown, comprises a commercially well known type of thermostatic wafer 27 mounted upon a bracket 28 secured to the base of the stove and projecting laterally therefrom to a desired position. An arm 29, connected to the movable part of the thermostat, is operably connected at the free end to the outer end of the damper tail piece 22 by suitable means such as the rigid rod 30. A protective plate 30^a may be formed upon the bracket 28 and extend over the thermostatic wafer to cover the latter and prevent chicks from roosting thereupon.

In order to prevent the escape of smoke through the damper opening 20 when the damper 21 is raised, the opening is shielded. A suitable shielding means is herein shown as comprising a cup-shaped member in the form of an arcuate plate 31 arranged to be permanently secured to the inner side of the top portion of the stove in such position that the plate underlies the damper opening 20 with the lower side of the plate in register with the lower margin of the damper opening. The plate extends inwardly and upwardly of the interior of the stove, and terminates with the upper edge thereof dividing the stove pipe opening semi-circularly. Obviously any accumulation of soot in the cup shaped plate 31 may be readily removed through the damper opening 20.

A stove constructed in the manner above set forth, in which the top, the base and the combustion chamber of the stove are formed in two sections capable of being easily cast, may be assembled rapidly and economically to produce an efficiently operating stove at a relatively low manufacturing cost.

I have shown in the present embodiment a simple form of canopy which may be readily manufactured and which is capable of being easily moved to an out of the way position to permit access to the stove for operating purposes. In this embodiment the canopy comprises a plurality of segments 32, four being shown in the present instance, of sheet metal of suitable form, which are secured to each other and to a canopy collar 33 in such manner that the segments slope outwardly from the collar. The canopy collar is of a size to rest upon the shoulder 6 formed by the sloping top surface of the stove, and for this purpose it is preferable that the collar is in the form of a bevelled ring.

Diametrically opposed portions of the collars are raised as at 34 to fit over the abutting flanges of the stove sections 3 and 4, and at the point on the collar underlying the tail piece 22 on the damper door, the collar is provided with a laterally offset portion 35 having a radially extending slot 36 therein to permit the passage of the collar upwardly past the tail piece. The collar 33 is provided with a pair of centrally apertured upstanding lugs 37 preferably eccentrically located on the collar as shown in Fig. 3. The lugs provide a means for securing a bail or handle 38, of any suitable type, to the collar to facilitate the lifting and lowering of the collar and the canopy.

As may be seen in Fig. 2 the collar is of such size that the lower edge thereof projects outwardly beyond the shoulder 6 on the stove, thereby providing a surface to which the segments of the canopy may be secured. Preferably an opening is provided in the segment of canopy which overlies the door in the base of the stove and a suitable closure means 39 is provided therefor. To further assist in raising the canopy a handle 40 is provided near one edge of the canopy, and in this instance is located upon the same side of the canopy as the bail 38. If desired, the handle may be made sufficiently heavy to act as a counterbalancing weight tending to equalize the balance of the canopy and to locate the center of gravity thereof substantially on the line of the bail. By this construction a stove having an axially positioned stove pipe may be used and the canopy may be raised and lowered by means of a customary rope and pulley secured to the bail without interferring with the equilibrium of the canopy.

It will be apparent from the foregoing that a stove construction has been provided in which the stove is comparatively short and squat without loss of heat or fuel capacity. Such a stove construction permits the upper part of the canopy to be positioned comparatively near to the ground resulting in a low wide spreading, gently sloping canopy, which overlies an exceedingly large area and which confines the heat of the stove in the most efficient manner. It will also be apparent that the dead air pocket usually found at the upper part of the canopy has been substantially eliminated by this construction.

I claim as my invention:

1. In combination with a brooder stove having a tapered upper portion and a centrally positioned flue opening, a collar removably mounted on said tapered portion, a canopy supported on said collar and extending about said stove with substantially uniform lateral dimensions, a lifting bail secured to said collar in a vertical plane disposed laterally of said flue opening, and a counterbalancing weight mounted on said canopy to establish the center of gravity thereof in said vertical plane.

2. In combination with a brooder stove having a tapered upper portion and a centrally positioned flue opening, a collar removably mounted on said tapered portion, a canopy supported on said collar and extending about said stove with substantially uniform lateral dimensions, a lifting bail secured to said collar in a vertical plane disposed laterally of said flue opening, and a counterbalancing weight mounted on said canopy to establish the center of gravity thereof in said vertical plane, said weight being shaped to form a handle for manual aid in lifting said canopy.

3. In a device of the character described, the combination of a heating unit having a centrally positioned flue, a heat retaining wall loosely supported on said unit and extending thereabout substantially concentrically of said flue, means on said wall disposed eccentrically with respect to the center thereof for moving said wall relatively to said unit, and a counterbalance on said wall.

In testimony whereof, I have hereunto affixed my signature.

JOHN C. BOHMKER.